

University of Alberta Hospital- Nursing Perceptions and Identification of Improvement Strategies For Patients with Post-Operative Acute Kidney Injury

Dr. C. Herman, Dr. N. Pannu and P. Mathura

DEFINE OPPORTUNITY

Background, Problem Statement and Goal Statement:

Patients undergoing operative procedures, especially cardiac and vascular surgery, have demonstrated a high incidence of in-hospital acute kidney injury (AKI) that is often under recognized and associated with increased adverse outcomes^{1,2}. At present, the burden of post-operative AKI on surgical wards at UAH is unknown. Many surgeons, surgical trainees and nursing staff at the UAH are unaware of the consequences of post-operative AKI, and current practice does not regularly involve nephrologists in post-operative care. The morbidity and mortality of post-operative AKI has been well documented, contributing both to future adverse events, increased length of hospitalization and higher costs^{1,2}.

Problem Statements - March, 2017:

- 1) There is limited care provider education and awareness of postoperative AKI.
- 2) There is no standard approach to recognition, response and referral regarding post-operative AKI. This results in poor patient outcomes, potentially acute dialysis, increased hospital stay and cost.

Aim Statements - December 31, 2017;

- 1) Provide AKI education to physicians and unit care providers in an effort to increase AKI awareness.
- 2) Appropriate recognition, response and referral of AKI in > 90% of cases; appropriate involvement of nephrology / internal medicine / critical care services for severe / refractory AKI in > 80% of cases.
- 3) 20% reduction of the incidence of severe (defined as \geq Stage 2 AKI as per KDIGO) post-operative AKI.

Improvement Selection and Implementation Plan: Time frame: October 31 to December 31, 2017

Recognition ¹	Response ¹	Referral ¹
<ol style="list-style-type: none"> 1. Chart creatinine daily for initial 72 hours post-op on in/out sheet. Have baseline/ pre-surgery creatinine value on top of sheet. 2. Accurate in/out charting for first 12 hrs. 3. Implement the AKI algorithm² 4. Complete Chart alert flag if patient meets criteria for AKI. 	<ol style="list-style-type: none"> 1. Call/page the on-call resident. 2. Verbal follow-up between nursing and surgical team. 3. Continue ordering of appropriate lab tests. 	<ol style="list-style-type: none"> 1. Consult pharmacy if AKI persists > 72 hrs. 2. Involve consultant services as required.

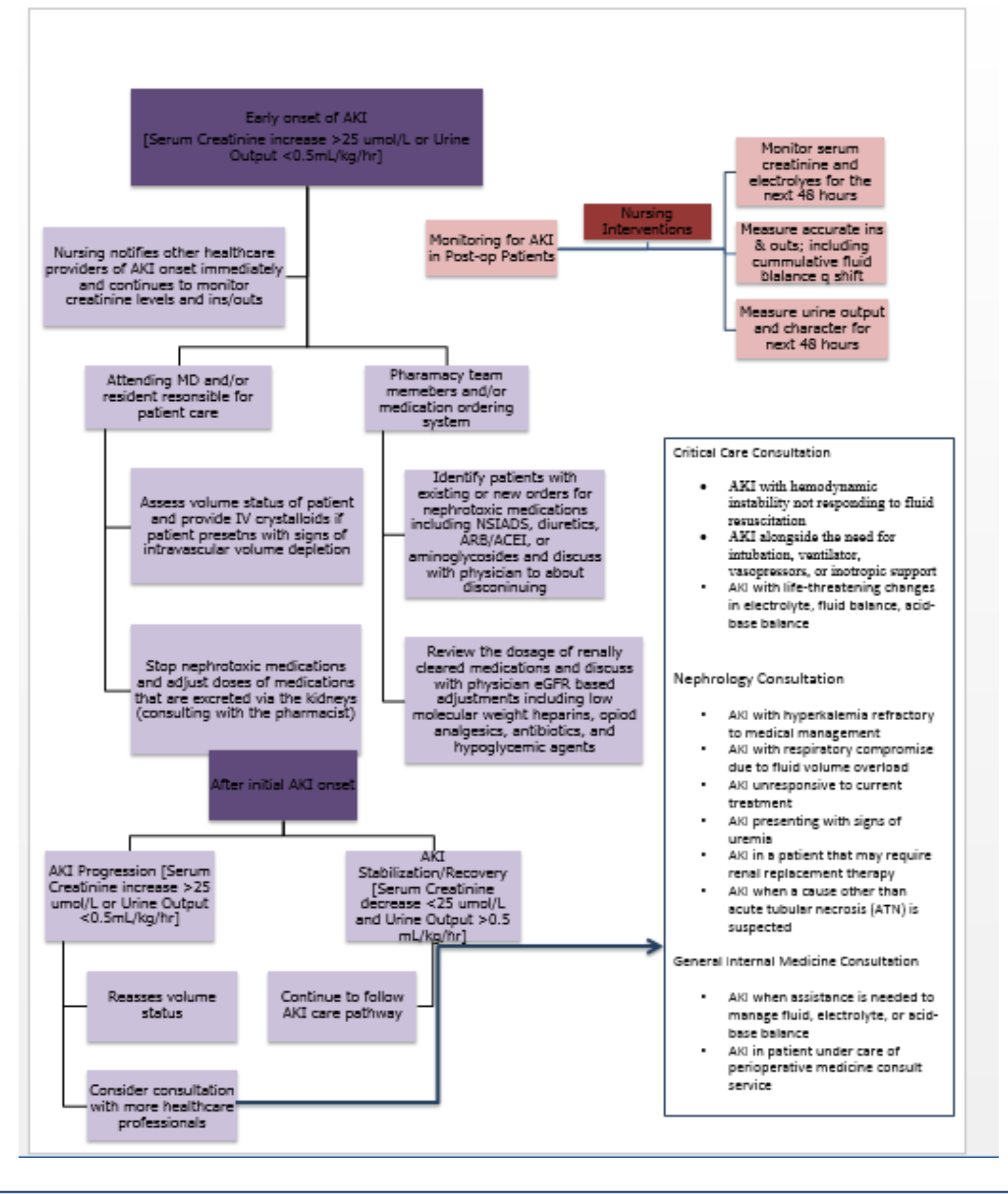
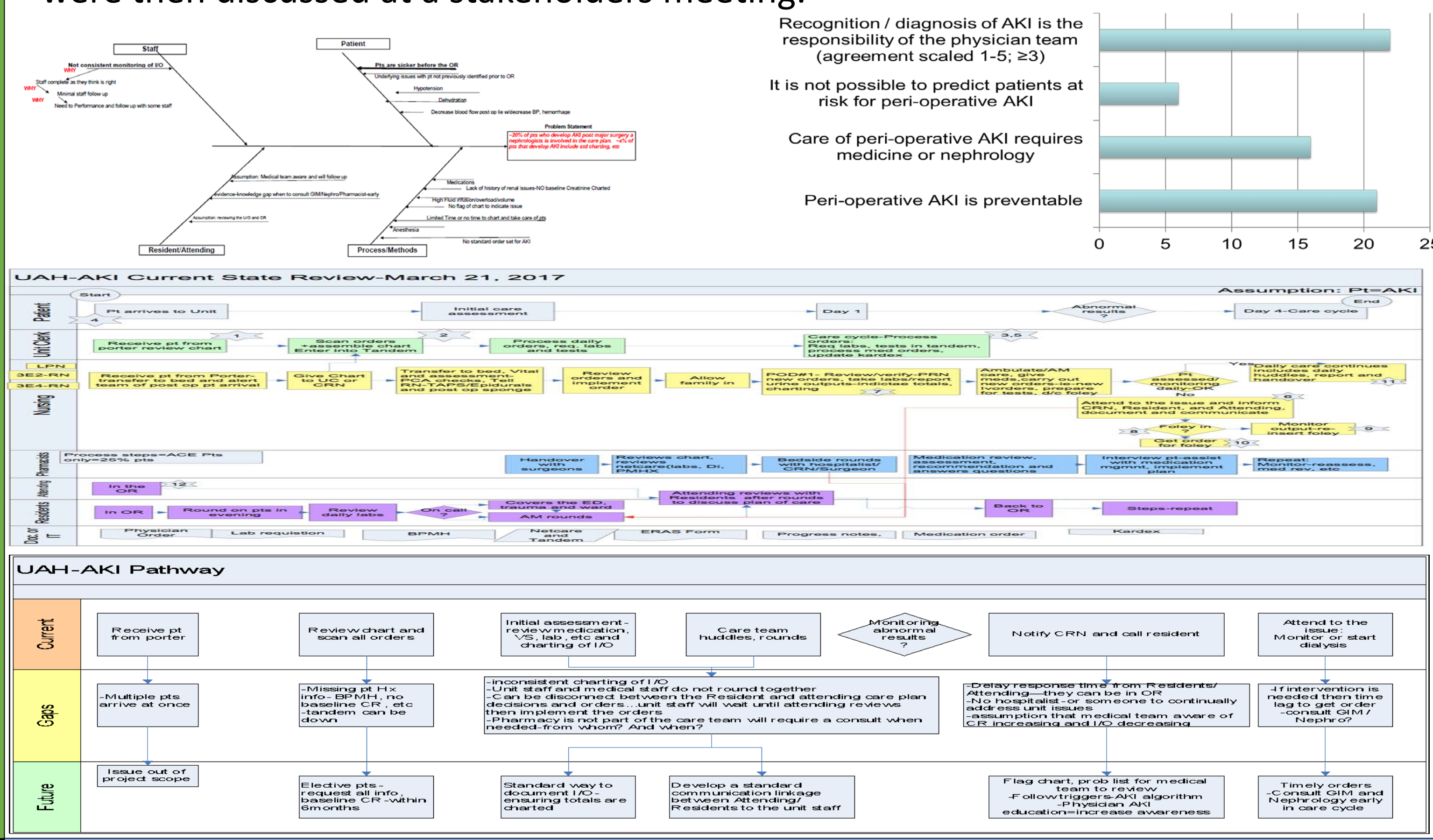
PDSA Initial measurement and results (October 31-November 15, 2017)
 Outcome measure: Incidence of severe AKI (as defined by \geq stage 2 AKI as per KDIGO).
 Process measures:

1. Proportion of patients having appropriate initial monitoring.
2. Proportion of patients appropriately recognized as having AKI.
3. Proportion of patients with AKI undergoing appropriate AKI assessment---future state
4. Proportion of patients undergoing AKI assessment who then progress to severe AKI.---future state

ACT TO IMPROVE

BUILD UNDERSTANDING

Process Assessment: Review of past literature that outlined an AKI algorithm and the 3Rs (recognition, response and referral) for appropriate management of post-operative AKI. Conducted a frontline care provider survey, a Gemba walk (direct observation) of surgical residents rounding and developed a process maps to identify areas of opportunities that were then discussed at a stakeholders meeting.



Reinforce Ownership, Measurement, & Continuous Improvement:

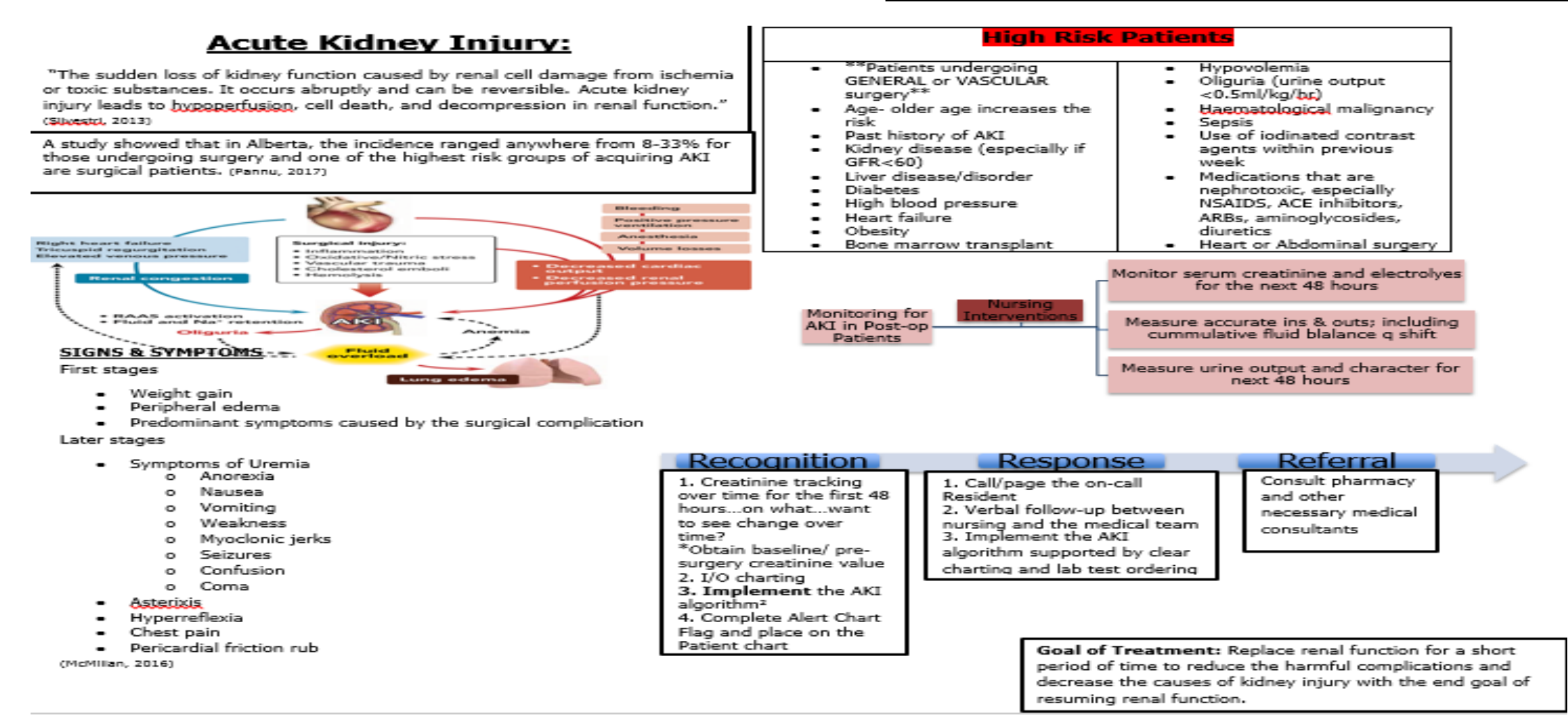
- Pro-actively identify high-risk patients prior to surgery with an enhanced post-operative AKI prediction algorithm.
- Ensure that all patients presenting for surgery have a recent / baseline creatinine value.
- Provide an annual AKI educational session for unit staff by the CNE, and incorporate post-operative AKI teaching into the surgical foundations curriculum for all year 1 and 2 surgical residents.
- AKI care pathway incorporated into the new Clinical information system along with an alert process.

SUSTAIN RESULTS

MANAGE CHANGE

Collaboration & Communication Strategies:

- Held a mapping session with a interprofessional frontline units staff to collaboratively discuss current process strengths and areas of opportunity
- Nursing student developed a AKI overview to support education of frontline nursing staff and development of AKI Unit poster both supporting the proposed change interventions



Lessons Learned:

- QI is a team sport and requires committed participation of all stakeholders, and that effective quality improvement requires a thorough understanding of the organizational / cultural / systemic barriers that oppose change
- Communication gaps are at the core of many problems encountered in the clinical environment and a potential target for QI. However, this is often not a easy gap to close.

SHARE LEARNING

References:
 1. Hulse C, Davies A (2015) Acute kidney injury: prevention and recognition. Nursing Times; 111: 30/31, 12-15
 2. Ozragat-Baslanti, T., et al., 2016, Acute and Chronic Kidney Disease and Cardiovascular Mortality After Major Surgery, *Annals of Surgery*, 264, (6), 987-996, 2) 5) James, M., et al., 2014, Improving Prevention, Early Recognition and Management of Acute Kidney Injury after Major Surgery: Results of a Planning Meeting with Multidisciplinary Stakeholders, *Canadian Journal of Kidney Health and Disease*, 1, 20